

REMARKS

Applicants and the undersigned are most grateful for the time and effort accorded the present application by the Examiner.

Please note, an interview was conducted on May 11, 2006, between the Examiner and the undersigned, during which time the presently claimed invention in view of the cited art was discussed. Unfortunately, no agreement as to the allowability of the claims could be reached during the interview.

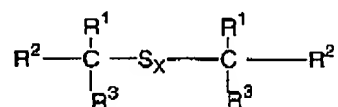
Claims 4-11 were pending in the instant application at the time of the outstanding Office Action. Claims 4-11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Trivette et al., U.S. Patent No. 3,354,131 (hereinafter Trivette).

Applicants' previous remarks of record remain applicable to the instant rejections and are therefore incorporated by reference as if fully set forth herein. The Office is respectfully requested to reconsider the rejections presented in the outstanding Office Action in light of the following remarks.

On appeal the Board agreed with the Examiner's position finding the prior claims' recitation of "for the mastication of rubbers" merely set forth the purpose or intended use of the claimed method, and because the claims failed to contain the limitation within the body of the claims the Office was entitled to its very broad interpretation. (Decision on Appeal) In reading the claims in their broadest sense, i.e., without any mastication limitation, the Board concluded a *prima facie* case of obviousness could be established by Trivette, which was said by the Board to teach the mixing of rubbers and dialkyl polysulfides regardless of whether mastication occurs. (Id.)

Claim 4 was amended in the Applicants' last response, dated October 26, 2005, to claim in the body of the claim the masticating of a rubber and recites:

A process for preparing a masticated rubber comprising **masticating a rubber** in the presence of a dialkyl polysulfide wherein said dialkyl polysulfide is a polysulfide of the formula



wherein

R¹ to R³ are identical or different and represent a linear or branched C₁-C₁₈-alkyl radical or represent hydrogen and

x represents the numbers 3 to 5,

and optionally admixing rubber chemicals and/or fillers into the masticated rubber,

wherein the process is carried out **in the absence of vulcanizing agents**.

(Note, emphasis has been added to particularly draw the Examiner's attention to some of the claimed elements not disclosed in the cited art and presently claimed. The Applicants, however, intended no change in the scope of the claims by the changes made by these amendments. It should also be understood, these amendments are not in acquiescence of the Office's position on allowability, but instead made merely to expedite prosecution.)

Surprisingly, the Office in the Office Action dated November 28, 2005, again asserts the Trivette invention is the same as the present invention, except that the Applicants' present claims "limit the mixing of the dialkyl polysulfide into the rubber stock in the absence of vulcanizing agents." (Office Action p. 2) The Office indicates that the art does not mandate the presence of vulcanizing agents and reads the art as a process for mixing polysulfide "[p]rior to vulcanization...to inhibit 'incipient vulcanizing' or scorch..." (Id.) Importantly, the Office also indicates, "This

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scorch occurs during usual processing steps and in the absence of vulcanizing agents." (Office Action pp. 2-3)

Applicants' continue to understand the art very differently than the Office and therefore traverse the present rejections. With the above position of the Office understood, Applicants' appreciate the opportunity to again present their understanding of the art and their reasons for the withdrawal of the present obviousness rejections.

First and possibly foremost "pre-vulcanization" as used in Trivette and as known to one skilled in the art is ultimately a part of the vulcanization process and it does not occur without vulcanization agents being present in the rubber mixture. Thus it should be appreciated from the outset that pre-vulcanization means "premature vulcanization" or "incipient vulcanization," both of which are terms set forth in the cited art, during the vulcanization process. Only with this understanding of "pre-vulcanization" does Trivette make any sense.

Explaining itself, Trivette states, "This invention relates to an improved vulcanizing process for rubber. In particular, it relates to a process for preventing the premature vulcanizing of vulcanizable rubber stocks." (Col. 1, Lines 22-25) In general, only where vulcanizing agents are present is there premature vulcanization. Thus, this description means premature vulcanization takes place during the overall vulcanization process, i.e. the steps after vulcanizing agents have been introduced. Broadly, prevulcanization inhibitors are used to suppress incipient vulcanization at processing temperatures without affecting the vulcanization rate at the vulcanization temperature. Thus while the Office is correct that Trivette does not expressly disclose that dialkyl polysulfides must be mixed with rubber stocks having vulcanizing agents there is no other proper conclusion to be reached. It should be noted that Trivette's abstract, wherein the inventor attempts to concisely state the technical disclosure of the patent, which states "Pre-vulcanization of rubber containing sulfur-vulcanizing agent and accelerator is inhibited..." fully supports the Applicants' position.

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The cited art also states, "Premature [or] incipient vulcanizing may occur during the usual processing steps prior to the final vulcanizing step or during storage between processing steps. This phenomenon, known as 'scorching,' is one of the rubber industry's major problems." (Col. 1, Lines 26-31) Applicants' respectfully submit that pre-vulcanization, premature vulcanization, incipient vulcanization, and/or scorching are all related to the unintentional vulcanization of rubber that may occur during the overall vulcanization processing steps prior to the final vulcanization step, but only where there are vulcanization agents present that can cross-link the rubber before the actual final vulcanization processing step takes place. These processing steps may include, for example, extrusion, calendaring, and blank formation. However, these terms are simply not used in the art, or in the reference, to mean the unintentional vulcanization of rubber during processes before the addition of vulcanizing agents.

"Scorching" or unintentional vulcanization does not normally occur where vulcanizing agents have not been introduced, i.e. only where there are vulcanizing agents is there the threat of scorching. Persons skilled in the art are not normally concerned with scorching rubber during the normal storage or the processing steps occurring before the addition of vulcanization agents. Thus it would make little, if any, sense to use a prevulcanization inhibitor in the presence of non-scorchable material for the purpose of preventing scorch. Applicants' submit that the Office's current reading of Trivette greatly surpasses the meaning Trivette is intended to have and moreover would have to one skilled in the art.

In stark contrast to the teachings of Trivette stands the present invention, which, in at least one presently claimed embodiment, relates to "masticating a rubber in the presence of a dialkyl polysulfide" performed "in the absence of vulcanizing agents". (Claim 4) Mastication and vulcanization, including premature or incipient vulcanization, are mutually exclusive processes performed at very different stages. The contrary nature of the two events is based on the simple fact that the former reduces molecular weight, i.e. breaks down or softens the rubber, while the latter increases molecular weight. Those skilled in the art fully appreciate

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that mastication is performed before vulcanization agents are mixed into the rubber compound, while vulcanization, of course, is performed after such mixing in the presence of vulcanizing agents that can form cross-linking bonds. It is therefore clear that at least two elements presently claimed are simply not taught or suggested by Trivette.

As the Examiner is assuredly aware to establish a *prima facie* case of obviousness under 35 U.S.C. § 103 there must be: (1) a teaching or suggestion to one skilled in the art of all the claimed limitations of the invention to which the art is applied; (2) a motivation to modify a reference or combine references; and (3) a reasonable expectation of success in making the modification or combination. See *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). In this instance all three of the requirements are lacking.

As explained above, the cited art clearly fails to teach or suggest, *inter alia*, "masticating a rubber in the presence of a dialkyl polysulfide" and "in the absence of vulcanizing agents". Thus all of the elements of the presently claimed invention have not be taught or suggested. Secondly, there is no motivation to modify Trivette to meet the presently claimed invention since the clear purpose of Trivette, the prevention of incipient vulcanization, is achieved without the need to address pre-mixing mastication processing. Finally, even if there were a motivation to make the necessary modifications to the reference there would not be any expectation of success in making the modifications. This is clear in the fact that one skilled in the art would find it surprising that a prevulcanization inhibitor would be successful as a masticating agent since one relates to bond formation while the other relates to bond breaking as discussed above. Therefore, Trivette fails to provide the necessary and proper support for the present 35 U.S.C. 103(a) rejections of the claimed invention.

It is respectfully submitted the presently claimed invention is not obvious over the prior art and that the present claims are allowable; the withdrawal of the outstanding rejections is therefore appropriate and requested.

Applicants' would like to also note their traversal of the rejections of the dependent claims, claims 5-11, as being obvious over Trivette. Applicants' fail to appreciate how the Office has come to its conclusion that the cited art teaches or suggests the subject matter of claims 5-11.

Claim 5 provides, "A process according to Claim 4, wherein said dialkyl polysulfide is used in amounts of 0.1 to 10 phr, based on the total amount of said rubbers to be masticated." Trivette fails to relate to mastication and surely fails to provide the claimed range used in a mastication process. Claims 6 and 7 set forth processes of mastication using specific groups of rubbers that are not taught or suggested by Trivette.

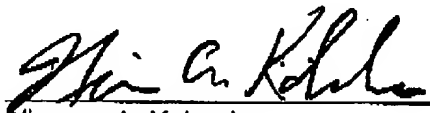
Claim 8 provides "A process according to claim 4, wherein said dialkyl polysulfide is used in conjunction with metal-containing heterocyclic ring compounds." The cited art fails to teach or suggest said metal-containing heterocyclic ring compound mastication process.

Claim 9 provides the use of "[d]ialkyl polysulfides ... absorbed onto a solid inert carrier." Again no evidence has been set forth identifying the basis for said rejections thereof. Likewise, claims 10 and 11, which depend from claims 9 and 10 respectively, further define the solid inert carrier. The solid inert carrier taught or suggested by the Trivette.

Unless, a *prima facie* case of obviousness is established with regard to the present dependent claims the rejections thereof should be properly withdrawn at this juncture. Moreover, by virtue of dependence from what is believed to be an allowable independent claim 4, it is also respectfully submitted that claims 5-11 are presently allowable for this reason as well.

In summary, it is respectfully submitted that the instant application, including claims 4-11, is presently in condition for allowance. Notice to the effect is hereby earnestly solicited. If there are any further issues in this application, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

By 
Nicanor A. Kohncke
Attorney for Applicants
Reg. No. 57,348

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LANXESS CORPORATION
111 RIDC Park West Drive
Pittsburgh, Pennsylvania 15275-1112
(412) 809-2234
FACSIMILE PHONE NUMBER:
(412) 809-1054

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